

What is claimed is:

1. A double-stranded DNA comprising (a) an arrangement of A-C and (b-1) an arrangement of A'-C' or (b-2) an inverted arrangement of A'-C', wherein A and A' are each double-stranded DNA and are capable of undergoing reciprocal homologous recombination and one of A and A' is an inverted orientation of the other, C and C' are each double-stranded DNA and are capable of undergoing reciprocal homologous recombination and one of C and C' is an inverted orientation of the other, and at least one of A and C comprises a target gene for amplification, and any DNA sequence may be inserted among A, A', C and C'.
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2. A double-stranded DNA comprising (a) an arrangement of A-B-C and (b-1) an arrangement of A'-B'-C' or (b-2) an inverted arrangement of A'-B'-C', wherein A and A' are each double-stranded DNA and are capable of undergoing reciprocal homologous recombination and one of A and A' is an inverted orientation of the other, B and B' are amplifying segments where at least one of B and B' containing at least one target gene for amplification, C and C' are each double-stranded DNA and are capable of undergoing reciprocal homologous recombination and one of C and C' is an inverted orientation of the other, and any DNA sequence may be inserted among A, A', B, B', C and C'.
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3. The double-stranded DNA of claim 2, wherein B and B' are amplifying segments each containing at least one target gene for amplification arranged in the same orientation and are capable of undergoing reciprocal homologous recombination.
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4. The double-stranded DNA of claim 3, wherein each of B and B' contains a selection gene for amplification arranged in the same orientation.
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5. The double-stranded DNA of claim 1 comprising an arrangement of A-C-A'-C', wherein the symbols are the same as above.
6. The double-stranded DNA of claim 5 comprising an arrangement of A-C-D-A'-C', wherein D represents a double-stranded DNA fragment containing at least one break site by endonuclease and other symbols are the same as above.
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7. The double-stranded DNA of any one of claims 2 to 4 comprising an arrangement of A-B-C-A'-B'-C', wherein the symbols are the same as above.

5 8. The double-stranded DNA of claim 7 comprising an arrangement of A-B-C-D-A'-B'-C', wherein D represents a double-stranded DNA fragment containing at least one break site by endonuclease and other symbols are the same as above.

10 9. The double stranded DNA of claim 1 comprising (a) an arrangement of E'-A-C and (b-1) an arrangement of A'-C'-E or (b-2) an inverted arrangement of A'-C'-E or (c) an arrangement of A -C-E and (d-1) an arrangement of E'-A'-C' or (d-2) an inverted arrangement of E'-A'-C', wherein E represents a telomere sequence and E' represents an inverted sequence of E and the other symbols are the same as above.

15 10. The double-stranded DNA of claim 9 comprising an arrangement of D-E'-A-C-D-A'-C'-E-D 、 D-E'-A-C-D-E'-C''-A''-D 、 D-A-C-E-D-E'-A'-C'-D or D-A-B-C-E-D-C''-B''-A''-E-D, wherein C''-A'' represents an inverted arrangement of A'-C'.

20 11. The double-stranded DNA of any one of claims 2 to 4 comprising (a) an arrangement of E'-A-B-C and (b-1) an arrangement of A'-B'-C'-E or (b-2) an inverted arrangement of A'-B'-C'-E' or (c) an arrangement of A-B-C-E, and (d-1) an arrangement of E'-A'-B'-C' or (d-2) an inverted arrangement of E'-A'-B'-C', wherein E represents a telomere sequence and E' represents an inverted orientation of E and the other symbols are the same as above.

25 12. The double-stranded DNA of claim 11 comprising the arrangement of D-E'-A-B-C-D-A'-B'-C'-E-D 、 D-E'-A-B-C-D-E'-C''-B''-A''-D 、 D-A-B-C-E-D-E'-A'-B'-C'-D 、 or D-A-B-C-E-D-C''-B''-A''-E-D, wherein C''-B''-A'' represents an inverted arrangement of A'-B'-C'.

30 13. A recombinant vector containing the double-stranded DNA of any one of claims 1 to 12.

14. A transformant transduced with the double-stranded DNA of any one of claims 1 to 8.

5 15. A recombinant plasmid integrated with the double-stranded DNA of any one of claims 9 to 12.

16. A method for gene amplification comprising the steps of preparing the transformant of claim 14 and amplifying the target gene.

10 17. The method for gene amplification of claim 16, wherein the transformant is treated with an endonuclease in the step of amplifying the target gene, when the double-stranded DNA is represented as A-C-D-A'-C' or A-B-C-D-A'-B'-C', wherein the symbols are the same as above.

15 18. The method for gene amplification comprising the steps of transducing bacteria with the plasmid of claim 15 and culturing the bacteria.

19. The method for producing a protein encoded by the target gene for amplification comprising the steps of culturing cells or bacteria obtained by the method of any one of
20 claims 16 to 18.